

Serial No. 10/711,785
Response Dated June 6, 2007
Reply to Communication of 03/06/2007

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended): A ~~well-treatment system~~ tool string for achieving a transient underbalance condition in a wellbore, the ~~system~~ tool string comprising:
 - a housing forming a sealed surge chamber; ~~[(and)]~~
 - a surge charge disposed within the sealed surge chamber, wherein the surge charge is adapted upon activation to penetrate the housing and to not penetrate material exterior of the housing; and
 - a chamber carrying a treatment fluid.
2. (Currently Amended): The ~~system~~ tool string of claim 1, wherein ~~[(the)]~~ a pressure within the surge chamber is less than ~~[(the)]~~ a pressure exterior of the housing.
3. (Currently Amended): The ~~system~~ tool string of claim 1, wherein the surge charge has a relatively large-radius explosive cavity.
4. (Currently Amended): The ~~system~~ tool string of claim 1, wherein the surge charge has a substantially infinite-radius explosive cavity.

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5. (Currently Amended): The ~~system~~ tool string of claim 1, wherein the explosive cavity of the surge charge is lined with a low-density material.
6. (Currently Amended): The ~~system~~ tool string of claim 1, wherein the explosive cavity of the surge charge is unlined.
7. (Currently Amended): The ~~system~~ tool string of claim 1, wherein the housing has a thinned wall section positioned adjacent a explosive cavity of the surge charge.
8. (Currently Amended): The ~~system~~ tool string of claim 1, further including [:] an explosive perforating charge adapted for penetrating a material exterior of the housing.
9. (Currently Amended): The ~~system~~ toolstring of claim [[9]]8, wherein the perforating charge has an explosive cavity having a radius smaller than the radius of [[the]] an explosive cavity of the surge charge.
10. (Currently Amended): The ~~system~~ tool string of claim [[9]]8, wherein [[the]] a pressure within the surge chamber is less than the pressure exterior of the housing.
11. (Currently Amended): The ~~system~~ tool string of claim 9, wherein a [[the]] pressure within the surge chamber is less than [[the]] a pressure exterior of the housing.

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12. - 15. (Canceled):

16. (Currently Amended): A tool string for well treatment system, the system tool string comprising:
a housing forming a sealed surge chamber wherein a [[the]] pressure within the surge chamber is less than a [[the]] pressure exterior of the housing when the surge chamber is sealed;
a surge charge disposed within the sealed surge chamber, wherein the surge charge is adapted upon activation to penetrate the housing and to not penetrate material exterior of the housing;
a thin walled section formed in the housing adjacent an explosive cavity of the surge charge; and
an explosive perforating charge adapted for penetrating a material exterior of the housing; and
a chamber carrying a treatment fluid.

17. (Currently Amended): The system tool string of claim 16, wherein the perforating charge has an explosive cavity having a radius smaller than a [[the]] radius of the explosive cavity of the surge charge.

18. (Currently Amended): The system tool string of claim 16, wherein the explosive cavity of the surge charge is lined.

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19. (Currently Amended): The system tool string of claim 16, wherein the explosive cavity of the surge charge is unlined.
20. (Currently Amended): The system tool string of claim 17, wherein the explosive cavity of the surge charge is unlined.
21. - 28. (Canceled):
29. (Currently Amended): A method for treating a well, the method comprising the steps of:
placing a tool string system in a wellbore proximate a formation to be treated, the system comprising: a housing; having a sealed surge chamber[();], a surge charge disposed within the sealed surge chamber, wherein the surge charge is adapted to only penetrate the housing, and a perforating charge[();], and a chamber carrying a treatment fluid;
releasing the treatment fluid into the wellbore;
detonating the perforating charge to create a tunnel in the formation; and
detonating the surge charge to penetrate the housing thereby providing fluid communication between the wellbore and the surge chamber.
30. (Original): The method of claim 29, wherein the sealed surge chamber has a lower pressure than [the] a wellbore pressure proximate the housing.

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31. (Currently Amended): The method of claim 29, ~~further including the step of~~ ~~disposing a chemical wherein the treatment fluid is released into [[in]]~~ the wellbore before detonating the perforating charge.

32. (Currently Amended): The method of claim 30, ~~further including the step of~~ ~~disposing a chemical wherein the treatment fluid is released into [[in]]~~ the wellbore before detonating the perforating charge.

33. (Original): The method of claim 29, wherein the surge charge has an explosive cavity with a radius relatively larger than the radius of the perforating charge explosive cavity.

34. (Original): The method of claim 30, wherein the surge charge has a substantially infinite-radius explosive charge cavity.

35. (Withdrawn): A downhole explosive charge adapted to a perforate a surge chamber without damaging objects external of the surge chamber to achieve a transient underbalance condition in a wellbore, the charge comprising:
an explosive having a charge cavity.

36. (Withdrawn): The charge of claim 35, wherein the charge cavity has a finite large radius.

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37. (Withdrawn): The charge of claim 35, wherein the charge cavity has a substantially infinite radius.

38. (Withdrawn): The charge of claim 35, wherein the charge cavity has an infinite radius.

39. (Withdrawn): The charge of claim 35, wherein the charge cavity is lined with a low-density liner material.

40. (Withdrawn): The charge of claim 36, wherein the charge cavity is lined with a low-density liner material.

41. (Withdrawn): The charge of claim 37, wherein the charge cavity is lined with a low-density liner material.

42. (Withdrawn): The charge of claim 38, wherein the charge cavity is lined with a low-density liner material.

43. (New): The tool string of claim 1, wherein a pressure in the chamber carrying the treatment fluid is greater than a pressure in an area of the wellbore adjacent and external to the chamber carrying the treatment fluid.

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44. (New): The tool string of claim 16, wherein a pressure in the chamber carrying the treatment fluid is greater than a pressure in an area of the wellbore adjacent and external to the chamber carrying the treatment fluid.

45. (New): The method of claim 29, wherein a pressure in the chamber carrying the treatment fluid is greater than a pressure in an area of the wellbore adjacent and external to the chamber carrying the treatment fluid.